Dairy and Livestock **RESEARCH REPORT**

Adjustable Speed Drives (ASD) in Dairy Vacuum Milking Systems

Adjustable speed drives (ASD) for dairy applications are commercially available.

An adjustable speed drive can run a motor at variable speed to match the vacuum needs of the milking system.

There are two milking barn applications for this new technology: one is for vacuum pumps and the other is for milk pumps. Below is a short description of how they work:

Vacuum Pumps - are typically oversized and run at constant high speed to accommodate any unexpected airflow, such as when milking units fall off a cow's udder. Because those pumps generally operate at full speed and maximum capacity, regardless of needs, vacuum pumps waste a lot of energy.

With an adjustable speed drive on the vacuum pump motor, the capacity of the vacuum pump is matched to the actual airflow requirements. The pump runs at a greatly reduced speed most of the time. It speeds when a unit falls off a cow or the worker allows too much air when applying the milking units to cows. During wash up, when the airflow requirements are often higher, the vacuum pump can be run at a high speed.

Milking Pumps - can also benefit from an adjustable speed drive by controlling your milk pump motor to speed up or slow down, depending on how much milk is in the receiver. This enables milk to be pumped at a more uniform flow through a plate cooler compared to the high speed intermittent "on/off" slugging of a conventional milk pump.

The flow ratio between the water in the plate cooler and the milk is increased, so the effectiveness of cooling the milk improves. During cleaning, when it needs to pump large volumes of water, the milk pump motor will run at higher speeds.

For more information about this technology contact your dairy equipment provider